

IN THE CLAIMS

Claim 1 (Currently Amended): A process for preparing amorphous active substance formulations comprising the steps of

- a) dissolving an active substance A) having a solubility of greater than 1 % by weight in a low molecular weight organic solvent 1, optionally together with a dispersing aid C) to form a solution E).
- b) providing a displacement agent 2 in which the solubility of the active substance A) is less than 1% by weight and which is miscible with solvent 1 and which effects precipitation of the active substance A), as solution F).
- c) adding a predominantly amorphous highly polar polymer B) which are readily soluble in water to the solution E) from step a) and/or to solution F) from step b).
- d) mixing solvent streams of solutions E) and F), optionally in a mixing nozzle, with the two streams being fed continuously and uniformly to the mixing zone of the mixing nozzle, optionally forming a turbulent flow in the mixing zone by a pressure gradient across the mixing nozzle to produce a homogeneous fine-particle suspension.
- e) removing the solvents from the mixture by freeze drying, spray drying or spray granulation.

Claim 2 (Cancelled): ~~The process as claimed in claim 1 wherein the mixing in step d) and optionally the formation of a turbulent flow is effected in a mixing nozzle by a pressure gradient across the mixing nozzle, or by stirring or by ultrasound treatment of the mixed streams.~~

Claim 3 (Previously Presented): The process as claimed in claim 1 wherein the viscosity of solutions E) and F) is kept below 100 mPas.

Claim 4 (Previously Presented): The process of claim 1 wherein the displacement agent 2 is water or an aqueous solution of an acid, of a base or of a salt.

Claim 5 (Cancelled): ~~The process of claim 1 wherein the solvent 1 is a low molecular weight organic solvent or an aqueous solution of a base or of an acid.~~

Claim 6 (Previously Presented): The process of claim 1 wherein the drying step e) is preceded by addition to the suspension ~~of~~ from 10 to 30% by weight of a carrier selected from the series talc, polyethylene glycol, modified starch or high molecular weight sugar, and optionally further polymer B), in each case based on the total weight of the formulation.

Claim 7 (Withdrawn): A predominantly amorphous active substance formulation comprising:

0.5 to 50% by weight of an active substance A) which is crystalline at 50°C,

50 to 90% by weight of a polymer B) selected from the group consisting of dextrans, dextrins, gum Arabic, polyvinyl alcohol, polyvinylpyrrolidone, polyethylene glycol, polyaspartic acid and alginates

and, based on the proportion of active substance A), 0.1 to 5 times of a dispersing agent C) selected from the group consisting of a nonionic, anionic, cationic and zwitterionic surface-active compounds,

wherein the formulation comprises homogeneous primary particles of a mixture of the substances A), B), C) having an average particle diameter of < 5 µm and wherein more than 50% of the active substance A) therein is present in the amorphous state.

Claim 8 (Withdrawn): The predominantly amorphous active substance formulation of claim 7 wherein the dispersing aid C) is selected from the group consisting of products of the reaction of fatty acids, fatty acid esters, fatty alcohols, fatty amines, alkylphenols or alkylarylphenols with ethylene oxide and/or propylene oxide, and their sulfuric esters, phosphoric acid, monoesters and phosphoric diesters, products of the reaction of ethylene oxide with propylene oxide alkylsulfonates, alkyl sulfates, aryl sulfates, alkylaryl sulfates, alkyl ether sulfates, alkylaryl ether sulfates, tetraalkylammonium halides, trialkylaryl ammonium halides, alkylaryl ethoxylate, sorbitan ethoxylates and alkylamine sulfonates, individually or in any mixture.

Claim 9 (Withdrawn): The predominantly amorphous active substance formulation of claim 7 wherein the active substance is selected from the group consisting of crop protection agents, bird repellents, plant nutrients and soil conditioners, and of agents for curing, alleviating or preventing diseases in humans or animals.

Claim 10 (Withdrawn): Crop protection agents in the form of active substance-containing suspensions in water or aqueous solvents and pharmaceutical preparations in oral dosage form comprising the predominantly amorphous active substance formulation of claim 7.

Claim 11 (Previously Presented): The process of claim 1 wherein said polymer B) is selected from the group consisting of dextrans, dextrins, gum Arabic, polyvinyl alcohol, polyvinylpyrrolidone, polyethylene glycol, polyaspartic acid and alginates.

Claim 12 (Previously Presented): The process of claim 5 wherein said organic solvent is selected from the group consisting of short-chain alcohols having 1 to 10 carbon atoms, of short-chain glycols ketones having 3 to 10 carbon atoms, carboxylic acids, ethers, esters, heterocyclic amines, formamides, n-methylpyrrolidone and dimethyl sulfoxide.

Claim 13 (Previously Presented): The process of claim 12 wherein said alcohols are selected from the group consisting of methanol, ethanol and 2-propanol, said glycols

are selected from the group consisting of ethylene glycol and 1,2-propylene glycol, said ketones are selected from the group consisting of acetone and 2-butanone, said carboxylic acids are acetic acid, said ethers are selected from the group consisting of diethyl ether, tetrahydrofuran and methyl tert-butyl ether, said esters are selected from the group consisting of methyl acetate, ethyl acetate and methyl formate, said heterocyclic amines are pyridines and said formamides are dimethylformamide.

Claim 14 (Withdrawn): The predominantly amorphous active substance formulation of claim 9 wherein said crop protection agents are selected from the group consisting of herbicides, fungicides, insecticides, acaricides and nematicides, said soil conditioners are selected from the group consisting of bistrifluron, foramsulfuron, mesosulfuron-methyl, pyraclostrobin, pyriflatalid, abamectin, AC 94,377, acequinocyl, acibenzolar-S-methyl, aclonifen, acrinathrin, AKH-7088, amidosulfuron, amitraz, anilofos, anthraquinone, atrazine, azafenidin, azinphos-methyl, azocyclotin, azoxystrobin, befubutamid, benalaxyl, benazolin-ethyl, benfluralin, benomyl, benoxacor, bensulfuron-methyl, bensultap, benzobicyclon, benzofenap, benzoximate, bifenazate, bifenox, bifenthrin, bitertanol, brodifacoum, bromadiolone, bromethalin, bromobutide, bromopropylate, bromuconazole, bupirimate, buprofezin, butafenacil, butralin, butroxydim, cafenstrole, captafol, captan, carbendazim, carpropamid, chinomethionat, chlorbromuron, chlordane, chlorfluazuron, chlorflurenol-methyl, chlorimuron-ethyl, chlorothalonil, chlorthal-dimethyl, chlozolinate, chromafenozide, cinidon-ethyl, clodinafop-propargyl, clofentezine, clomeprop, cloquintocet-mexyl, cloransulam-methyl, copper oxychloride, copper sulfate (tribasic), coumaphos, coumatetralyl, cumyluron, cyclosulfamuron, cyfluthrin, beta-cyfluthrin, cypermethrin, alpha-cypermethrin, beta-cypermethrin, theta-cypermethrin, cyprodinil, daimuron, 2,4-DB, deltamethrin, desmedipham, diafenthiuron, dichlobenil, dichlofuanid, dichlorophen, diclocymet, diclomezine, dicloran, diclosulam, dicofol, diethofencarb, difenacoum, difenoconazole, difethialone, diflubenzuron, diflufenican, dimefuron, dimethametryn, dimethomorph,

diniconazole, dinitramine, dinobuton, dinoterb, diphacinone, dithianon, dithiopyr, diuron, dodemorph, dodemorph acetate, emamectin benzoate, endosulfan, epoxiconazole, ergocalciferol, esfenvalerate, ethalfluralin, ethametsulfuron-methyl, ethofumesate, ethoxysulfuron, etobenzanid, etoxazole, famoxadone, fenamidone, fenarimol, fenazaquin, fenbuconazole, fenbutatin oxide, fenchlorazole-ethyl, fencloclorim, fenhexamid, fenoxaprop-P-ethyl, fenoxy carb, fenpiclonil, fenpyroximate, fentin acetate, fentin hydroxide, fentrazamide, fenvalerate, fipronil, flamprop-M-isopropyl, flamprop-M-methyl, flocoumafen, fluazinam, fluazolate, fluazuron, flucycloxuron, fludioxonil, flufenoxuron, flumetralin, flumsulfuron, flumiclorac-pentyl, fluoroglycofen-ethyl, fluoroimide, fluquinconazole, flurazole, flurenol-butyl, fluridone, flurochloridone, fluroxypyr-meptyl, flurtamone, flusilazole, flusulfamide, fluthiacet-methyl, flutolanil, folpet, fomesafen, halofenozide, halosulfuron-methyl, haloxyfop, haloxyfop-etyl, gamma-HCH, heptachlor, hexaconazole, hexaflumuron, hexythiazox, hydramethylnon, cyazofamid, imazosulfuron, imibenconazole, iminoctadine tris(albesilate), inabenfide, indanofan, indoxacarb, ioxynil, ipconazole, iprodione, iprovalicarb, isoxaben, isoxaflutole, kresoxim-methyl, lenacil, lufenuron, MCPA, mefenacet, mefenpyr-diethyl, mepanipyrim, mepronil, metconazole, methiocarb, methoxychlor, methoxyfenozide, metobenzuron, milbemectin, MK-616, 2-(1-naphthyl)acetamide, naproanilide, neburon, niclosamide, nitrothal-isopropyl, norflurazon, novaluron, nuarimol, oryzalin, oxabetrinil, oxadiargyl, oxadiaxon, oxaziclofone, ooxolinic acid, oxpoconazole fumarate, oxyfluorfen, paclobutrazol, pencycuron, pendimethalin, pentanochlor, pentoxazone, permethrin, phenmedipham, N-phenylphthalamic acid, phosmet, phthalide, picobenzamid, picolinafen, picoxystrobin, pindone, polynactins, polyoxorim, primisulfuron-methyl, procymidone, prodiamine, prometryn, propaquizafop, propazine, propyzamide, prosulfuron, pyraflufen-ethyl, pyrazolynate, pyrazophos, pyrazosulfuron-ethyl, pyribenzoxim, pyributicarb, pyridaben, pyrimidifen, pyriminobac-methyl, quinclorac, quinoxifen, quintozene, quizalofop-ethyl, quizalofop-P-ethyl, quizalofop-P-tefuryl, resmethrin, rimsulfuron, rotenone, siduron, silthiofam, simazine, spinosad, sulfluramid, sulfosulfuron, SZI-121, tebuconazole, tebufenozide, tebufenpyrad,

tecloftalam, tecnazene, teflubenzuron, terbutylazine, terbutryn, tetrachlorvinphos, tetradifon, tetramethrin, thenylchlor, thiabendazole, thiazopyr, thidiazuron, thifluzamide, thiodicarb, thiram, TI-35, tolclofos-methyl, tolylfluanid, tralkoxydim, tralomethrin, triadimenol, triasulfuron, triazoxide, tribenuron-methyl, trietazine, trifloxystrobin, triflumuron, triflusulfuron-methyl, triforine, triticonazole, uniconazole, uniconazole-P, vinclozolin, vitamin D3, warfarin, ziram, zoxamide, sulfaquinoxaline, aldrin, anilazine, barban, benodanil, benquinox, benzoylprop; benzoylprop-ethyl, binapacryl, bromofenoxim, bromophos, buturon, calcium cyanamide, camphechlor, chlobenthiazone, chlomethoxyfen, chlorbenside, chlorfenprop; chlorfenprop-methyl, chlornitrofen, chloromethiuron, chloroneb, chloropropylate, chloroxuron, chlorphoxim, climbazole, coumachlor, cyanofenphos, dialifos, dichlone, diclobutrazol, dieldrin, dienochlor, difenoxuron, dioxabenzofos, dipropetryn, drazoxolon, fenitropan, fenoxyaprop-ethyl; fenoxyprop, fenthiaprop; fenthiaprop-ethyl, flamprop-methyl; flamprop-isopropyl; flamprop, flubenzimine, fluenetil, flumipropyn, fluorodifen, fluotrimazole, flupoxam, forchlorfenuron, furconazole-cis, halacrinate, isomethiozin, isoxapryifop, iodfenphos, leptophos, medinoterb acetate; medinoterb, methazole, methfuroxam, methoxyphenone, monalide, myclozolin, naphthalene, nitralin, nitrofen, phenisopham, phenylmercury dimethylthiocarbamate, quinonamid, SMY 1500, tetcyclacis, tetrasul, thidiazimin, trichlamide, 2,2,2-trichloro-1-(3,4-dichlorophenyl)ethyl acetate, trifemmorph, urbacid,

said agents for curing, alleviating or preventing diseases in humans or animals are selected from the group consisting of therapeutic agents for acidosis, analeptics/antihypoxemics, analgesics/antirheumatics, anthelmintics, antiallergics, antianemics, antiarrhythmics, antibiotics/antiinfectives, antidementia drugs, antidiabetics, antidotes, antiemetics/antivertigo drugs, antiepileptics, antihemorrhagics, antihypertensives, antihypoglycemics, antihypotensives, anticoagulants, antimycotics, antiparasitic agents, antiinflammatory drugs, antitussives/expectorants, arteriosclerosis drugs, bronchodilators/antiasthmatics, chologogs and biliary therapeutic agents, cholinergics, corticoids, dermatologicals,

diuretics, blood flow-stimulating agents, anticraving drugs/agents for the treatment of addictive disorders, enzyme inhibitors, preparations for enzyme deficiency and transport proteins, fibrinolytics, geriatric drugs, antigout drugs, gynecologicals, hepatic drugs, hypnotics/sedatives, immunomodulators, cardiac drugs, coronary agents, laxatives, lipid-lowering agents, local anesthetics/neurotherapeutic agents, gastrointestinal drugs, migraine remedies, muscle relaxants, ophthalmologicals, osteoporosis remedies/calcium metabolism regulators, otologicals, psychoactive drugs, rhinologicals/sinusitis remedies, roborants/tonics, thyroid therapeutic agents, sex hormones and their inhibitors, spasmolytics/anticholinergics, platelet aggregation inhibitors, tuberculosis drugs, stimulants, urologicals, vein therapeutic agents, vitamins, cytostatics, other antineoplastic agents and protectives.

Claim 15 (Withdrawn): The predominantly amorphous active substance formulation of claim 14, wherein said agents for curing, alleviating or preventing diseases in humans or animals are selected from the group consisting of boldine, quinolones, felodipine, flurbiprofen, ibuprofen, ketoprofen, macrolides, nicardipine, nifedipine, nimodipine, nisoldipine, nitrendipine, norfloxacin, ofloxacin, paclitaxel, sulfonamides and tetracyclines.